

ABT Agricultural and Medical Biotechnology

ABT 101 INTRODUCTION TO BIOTECHNOLOGY. (1)

An introduction to biotechnology: historical perspectives, current applications and future directions. The course will consist of informal lectures and interactive discussions led by Biotechnology faculty and visiting professionals. The course will also orient students to the educational/career opportunities in Biotechnology and assist them in developing a focus for their individualized degree programs. Lecture, two hours per week. Prereq: First year or first semester transfer students in Agricultural Biotechnology. [*Offered in fall only.*]

ABT 120 GENETICS AND SOCIETY. (3)

This course is designed for science and non-science majors, giving students an understanding of how genetics influences and impacts our social fabric on a daily basis, and equipping students with a sufficient understanding to participate in the policy debates that are impacting our lives. The course will introduce students to the basic concepts of genetics and to the modern methodologies of molecular genetics. The course will also educate students in the process of scientific discovery and empower students with the knowledge and critical thinking skills necessary to evaluate the present and future impact of genetics on society. While the course is intended for first semester freshmen, students at all class standings are welcome to enroll. [*Offered in spring only.*]

ABT 201 SCIENTIFIC METHOD IN BIOTECHNOLOGY. (1)

A course designed to acquaint students with the common experimental methods used in agricultural biotechnology. Students will be presented with several case studies which demonstrate basic scientific reasoning and experimental strategies. The students will then use their understanding of basic scientific methods and agricultural systems to critically evaluate work from the current scientific literature. Each student will be required to provide a written and oral evaluation of a research project in some aspect of agricultural biotechnology. The class will provide the students with the basic skills needed for preparing their own research proposals. Prereq: ABT 101 and enrollment in the Agricultural Biotechnology degree program or consent of instructor. This course is a Graduation Composition and Communication Requirement (GCCR) course in certain programs, and hence is not likely to be eligible for automatic transfer credit to UK. [*Offered in fall only.*]

ABT 301 WRITING AND PRESENTATIONS IN THE LIFE SCIENCES. (2)

The goals of this course are to expose students to current scientific literature in the life sciences, develop skills for the evaluation of primary research literature and presentations, prepare students to write an independent research proposal, and develop oral communication skills. Student participation is a key component of activities, and students are required to provide both oral and written evaluations of research publications, presentations, and proposals. A major part of the course involves students developing, writing, and presenting an independent research proposal in coordination with a research mentor. This course should be taken prior to ABT 395 or ABT 399, and students must identify a research mentor early during the semester. Prereq: Agricultural Biotechnology major or consent of instructor. This course is a Graduation Composition and Communication Requirement (GCCR) course in certain programs, and hence is not likely to be eligible for automatic transfer credit to UK. [*Offered in fall and spring.*]

ABT 360 GENETICS. (3)

The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, molecular, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: BIO 148, BIO 152 and CHE 105 or consent of instructor. (Same as ENT 360.) [*Offered in fall only.*]

ABT 361 GENETICS LAB ONLINE. (1)

Analysis and interpretation of genetics problems using interactive computer programs. Prereq: ABT/ASC/ENT 360 (should be taken concurrently).

ABT 395 INDEPENDENT STUDY IN BIOTECHNOLOGY. (1-4)

Independent study in biotechnology under the supervision of a faculty member. May be repeated to a maximum of six credits. Prereq: Agricultural Biotechnology major and consent of appropriate instructor before registration. [*Offered in fall, spring and summer II.*]

#ABT 396 RESEARCH EXPERIENCE IN BIOTECHNOLOGY. (1-4)

ABT 396: Research in biotechnology under the supervision of a faculty member. One to four credit hours/semester. The course may be repeated for a maximum of six credits, but the student must meet the requirements each semester to allow enrollment. This course should further the students' experience with science, enhance their appreciation for the scientific process, and what it means to conduct scientific research. Prereq: Agricultural and Medical Biotechnology major, consent of advisor before registration and identification of a faculty research mentor.

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ABT 399 EXPERIENTIAL LEARNING IN BIOTECHNOLOGY. (1-6)

An internship in biotechnology under the supervision of a faculty member. May be repeated for a maximum of six credits. Prereq: Consent of the instructor, chairperson for the Agricultural Biotechnology degree program and completion of a learning contract before registration. [Offered in fall, spring and summer II.]

ABT 460 INTRODUCTION TO MOLECULAR GENETICS. (3)

Molecular genetics is the study of the biochemical basis of heredity and focuses on the structure and expression of DNA at the molecular and cellular level. The course will provide a detailed understanding of the biochemical events involved in genome replication, prokaryotic and eukaryotic transcription, and translation of DNA, as well as RNA processing, recombination and the theoretical underpinnings of genetic engineering. Prereq: ABT/ENT 360 or BIO 304 or consent of instructor. (Same as ENT 460.) [Offered in spring only.]

ABT 461 INTRODUCTION TO POPULATION GENETICS. (3)

This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and micro-organisms), but some theoretical derivations will also be introduced. Prereq: ABT 360 (or equivalent) and one course in probability/statistics. (Same as BIO/ENT/FOR 461.) [Offered in spring only.]

ABT 495 EXPERIMENTAL METHODS IN BIOTECHNOLOGY. (4)

A laboratory techniques course designed to give students the technical skills and understanding necessary to critically examine biological systems at the molecular level. The course will emphasize the principles of chemistry, biochemistry and molecular biology as applied to a model system for laboratory investigations. Laboratory, nine hours per week. Prereq: ABT/ENT 360 or BIO 304, Agricultural Biotechnology major or consent of instructor. [Offered in fall and spring.]

ABT 505 EVOLUTION IN AGRICULTURE, MEDICINE AND CONSERVATION BIOLOGY. (3)

An introduction to modern evolutionary theory with emphasis on its application to current problems in agriculture, the biomedical sciences, and conservation biology. Prereq: Genetics (ABT 360, BIO 304 or equivalent introductory genetics course). (Same as ENT 505.)